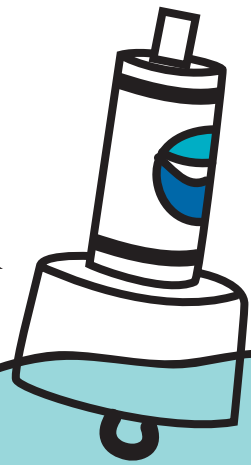


# Shipwreck Mapping



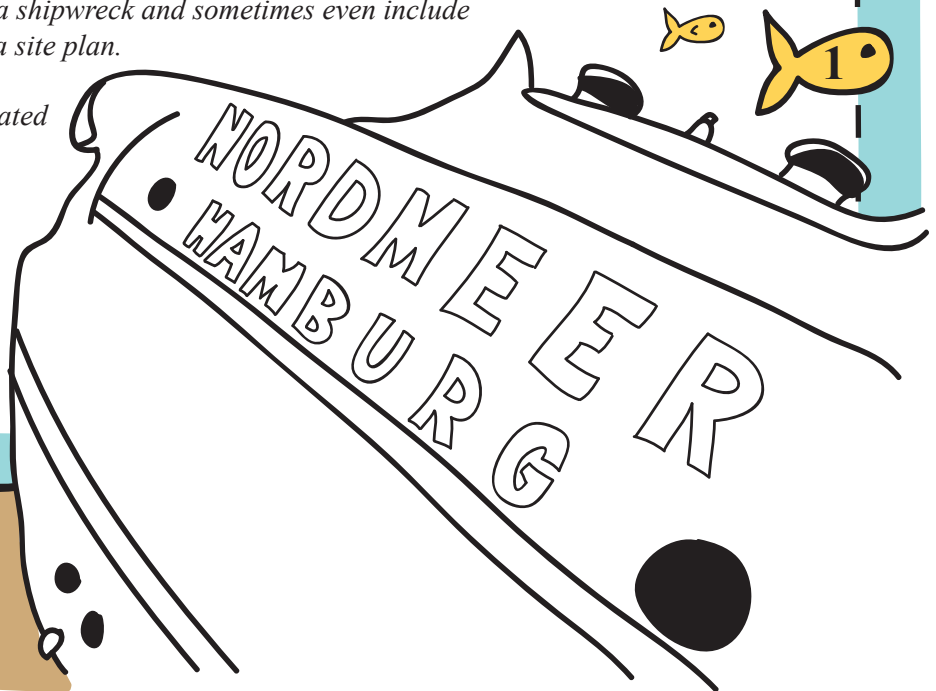
Archaeologists seek to understand past cultures by scientifically analyzing the material remains, such as sites and artifacts left behind by human activities. Underwater archaeology is the study of any material remains that are found underwater. One particular aspect of underwater archaeology is maritime archaeology. **Maritime archaeologists** study the history of human interaction with seas, lakes, and rivers through the investigation of the remains of vessels, shore side facilities, cargoes, and artifacts.

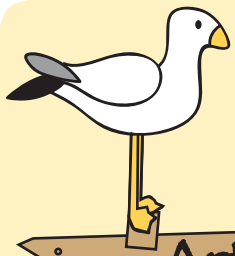
Thunder Bay National Marine Sanctuary is an important location for maritime archaeologists. Approximately 200 shipwrecks have been found in and around the sanctuary, representing every type of vessel that sailed on the Great Lakes during the “Shipwreck Century”, from 1825-1925.

One of the main techniques used by maritime archaeologists to record and learn about shipwrecks is a **site plan**. In order to create a site plan that is scaled accurately, archaeologists first set up datum points and a **baseline** to measure all other features from. These stationary points provide a solid reference to locate not only the artifacts and features of the shipwreck in relation to one another, but also to determine the precise location of the shipwreck within the lake. By creating an accurate drawing of a shipwreck and its artifacts, archaeologists and historians are often able to identify the shipwreck. Site plans also allow researchers to get detailed measurements of the ship, learn about the construction techniques that were used to build different kinds of vessels, and monitor the ways in which the condition of the shipwreck changes over time.

Though site plans are extremely useful to archaeologists, creating a site plan is a difficult and time-consuming process that often requires many divers due to the large size of some Great Lakes vessels. In some cases, archaeologists turn to other techniques to gather information about a shipwreck. One of these techniques is the use of a **photo mosaic**. Archaeologists can make photo mosaics faster than they can draw up site plans, but photo mosaics provide detailed images of a shipwreck and sometimes even include features that would not be represented on a site plan.

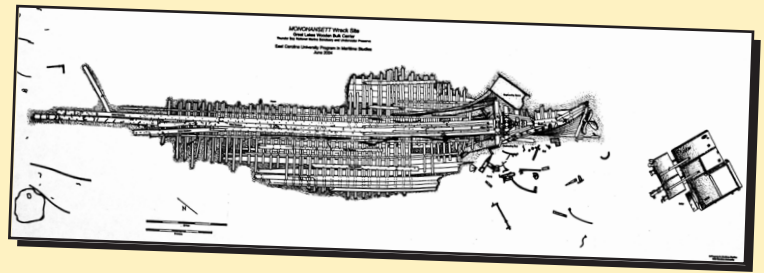
Archaeologists can also use remotely operated vehicles, or ROVs, to take a closer look at a shipwreck. ROVs are extremely useful archaeological tools. Unlike a SCUBA diver, an ROV can spend an unlimited amount of time on a shipwreck. ROVs can also reach shipwrecks that are too deep for maritime archaeologists to dive on.





This is the site plan of the Monohansett, a wooden bulk freighter that burned in 1907. The site plan was created by students from East Carolina University in North Carolina. It took the students around three weeks to complete this site plan.

## Arti-FACTS



### Activity

In this activity, you are going to experience what it is like for real archaeologists to study and record shipwrecks underwater. A shipwreck has recently been discovered in Thunder Bay, and you will need to do a SCUBA dive on the shipwreck. You will need to make observations and collect data about the shipwreck, as well as record its measurements. You will then need to use that information and historical research to make hypotheses about the shipwreck and try to discover its identity.

### Materials

- Measuring tape (1 per group)
- Clipboard (1 per group)
- Ruler (1 per student)
- Graph Paper (1 per group)
- Log Sheet (1 per student)
- Pencil
- Information Packet: Parts of a Ship Diagram, Vocabulary List, Site Plans and Photo Mosaics handout, Shipwreck Data Sheet, Thunder Bay Tribune, Thunder Bay Wreck Map, Dive Signals Reference Sheet(optional)

### Vessel Vocab

**Baseline** – The main line used as a base of measurement, from which a site's features are measured in an archaeological site plan.  
**Maritime Archaeology** – A discipline that studies human interaction with the sea, lakes and rivers, through the study of vessels, shore side facilities, cargoes, and human remains.  
**Photo Mosaic** – A composite image formed from many small pictures taken of a vessel, which are then stitched together using a computer to create one large picture.  
**Site Plan** – A scaled drawing of a shipwreck and its artifacts as it lays on the bottom of the sea or lake.

### Crew Commands

1. For safety, divers never dive alone. Work with a group of 2 or 3 other students as your dive buddies.
2. Within your group, each member will be primarily responsible for a certain task. Choose one student as your Dive Leader. The Dive Leader will be responsible for coordinating the group and monitoring the time spent "underwater" while working on the wreck site. Choose one or two students as Recorders. The Recorders will be in charge of writing down the observations made and the measurements taken by the group. Choose one student as the Artist, who will be responsible for sketching the group's section of the wreck site. Remember that you must all work together to accurately map the wreck site.
3. If you are in Dive Team A, begin with the "Underwater Archaeology Procedures". If you are in Dive Team B, follow the "Historical Research Procedures" on the next page. When you have completed those procedures, switch to the opposite procedures
4. After you have done both historical and archaeological research, discuss your observations from both components with your group. Use your graph paper to create a scaled drawing of your section of the shipwreck and try to determine what wreck you think you might have found.
5. When you and the other groups have finished mapping your sections of the shipwreck, combine your drawings to make a mosaic of the entire wreck. If you were unsure of what wreck you might have found, see if looking at the map of the entire wreck helps you.





## Underwater Archaeology Procedures

1. If your group is part of Dive Team A, you will be following these procedures first. If your group is part of Dive Team B, look ahead to the Historical Research Procedures. You will be following those first and returning to these later in the activity
2. Maritime archaeologists face many challenges while they are working underwater. They often encounter low visibility situations. For this reason, archaeologists often divide up a large shipwreck site into manageable sections and work on one small section at a time. Find the perimeters of the small section to which your group is assigned. Where is your section in relation to the rest of the ship? Sketch out general observations made for your section.
3. Archaeologists must also work within a small time window so that they do not run out of air in their SCUBA tank. Your team will have only 20 minutes to complete your measurements. This means that you must focus on only the most important parts and key features of the wreck. Identify the most essential elements in your section of the wreck site and measure and draw those areas first, before your time limit runs out.
4. Archaeologists often use right angle measurements to map a shipwreck accurately and measure different parts of the ship and the locations of various artifacts. In order to recreate a scaled drawing of the wreck from your right angle measurements, you will need to measure the distance from one location on the baseline. Be sure to mark on your log sheet where on the baseline you started your measurement.

## Historical Research Procedures

1. If your group is part of Dive Team B, you will be following these procedures first. If your group is part of Dive Team A, go back to the Underwater Archaeology Procedures. You will be following those first and returning to these later in the activity.
2. Maritime archaeologists do historical research along with archaeological research in order to be able to identify a shipwreck. Use your copies of the Shipwreck Data Sheet and the Thunder Bay Tribune to do your own historical research on the vessel you are responsible for mapping.
3. Read through the stories of the shipwrecks found in Thunder Bay. Note the key features of those shipwrecks. Are any features on the wreck site identifiable characteristics of one of the vessels you have read about?

## Shipwreck Challenge

Transfer your class's mosaic site plan onto an 11"x 17" piece of graph paper to create a real site plan of the whole wreck. Send the site plan to Thunder Bay National Marine Sanctuary to be put on display.

Figure It Out

With Inspector Perry Mussel



What kinds of obstacles might underwater archaeologists face while mapping a shipwreck site?

